

AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings include replacement sheets for Figures 2 – 5 including better quality drawings for Figures 2 – 5 without substantive changes.

Attachment: Replacement sheets for Figures 2 – 5.

REMARKS

I. Status of Claims

Claims 15, 16, and 18-20 were pending in the application. Claims 15, 19, and 20 have been amended. New claims 22 and 23 have been added.

Amended claims 15, 19, and 20 and newly presented claims 22 and 23 find support throughout the specification and claims, as originally filed. By way of example, support for amended claim 15 may be found on page 4, lines 28-29; page 5, lines 1-7; and page 11, lines 4-7 of the specification. Support for amended claim 19 may be found on page 4, lines 19-28 and page 10, lines 16-27 of the specification. Support for amended claim 20 may be found on page 4, lines 5-8; page 7, lines 25-26; and page 8, lines 1-2. Support for claims 22 and 23 can be found on page 5, lines 5-7; and page 11, lines 5-7 of the specification. Therefore, no new subject matter has been added.

II. Objection to the Drawings

Replacement sheets for Figures 2 – 5 including better quality drawing for Figures 2 – 5 without substantive changes are attached. Accordingly, Applicants respectfully request reconsideration and withdrawal of the objection to the drawings.

III. Rejection under 35 USC § 112

Claim 15 is rejected under 35 USC § 112, second paragraph, as allegedly being indefinite in the recitation of “about”. Applicants respectfully traverse the Examiner’s rejection and its supporting remarks. Applicants assert that when a concentration is recited using the word “about”, what is meant is that the actual concentration may vary from the exact concentration as cited (due to, for example, evaporation of a small amount of solvent). “About” is neither broad nor arbitrary, but rather serves as a flexible term with a meaning similar to “approximately.” Therefore, use of the

term “about” is not indefinite as one skilled in the art would understand the scope of the claim when read in light of the specification.

Claim 19 is rejected under 35 USC § 112, second paragraph, as allegedly being indefinite in the recitation of “MPM-Cu”. Claim 19 has been amended to replace “MPM-Cu” with “MPM-MC” of which support may be found on page 4, lines 19-28 and page 10, lines 16-27 of the specification.

Accordingly, Applicants respectfully request reconsideration and withdrawal of these 35 USC § 112 rejections.

IV. Rejection under 35 USC § 102

Claim 15 is rejected under 35 USC § 102(e) as allegedly being anticipated by Zhang S. et al. (US Patent No. 6,486,384, filed September 23, 1998 and issued November 26, 2002). Applicants traverse the rejection and its supporting remarks. However, in order to facilitate prosecution in this case applicants have amended the pending claim, without prejudice or disclaimer, to recite greater than about 35 μM zinc. With the amendment, the claim no longer reads on from about 30 μM to about 1500 μM zinc.

The Examiner has asserted that while Zhang S. et al. do not explicitly teach the presence of zinc at requisite concentration in their meristem proliferation medium, Zhang S. et al. implicitly teach the presence of zinc at requisite concentration in their meristem proliferation medium, as the MS basal medium used to prepare their meristem proliferation medium inherently comprises zinc at a requisite concentration (8.6 mg/L $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$; corresponding to a concentration of about 30 μM zinc).

Claim 15 as amended requires that the concentration of zinc is greater than about 35 μM (support found on page 4, lines 28-29; page 5, lines 1-7; and page 11, lines 4-7 of the specification). Newly added dependent claims 22 and 23 are drawn to the method of claim 15 where the zinc concentration is from about 60 μM to about 1500 μM and from about 100 μM to about 500 μM ,

respectively (support found on page 5, lines 5-7; and page 11, lines 5-7 of the specification). These claims are drawn to a method where the zinc concentration is greater than the asserted inherent zinc concentration of the MS basal medium used to prepare the meristem proliferation medium used in the teachings of Zhang S. et al. The method of Zhang S. et al. does not teach that higher levels of zinc over the zinc present in the MS basal medium used to prepare their meristem proliferation medium would improve the induction of shoot meristematic cultures, as zinc is never explicitly mentioned as a variable one skilled in the art would perturb to improve the induction of shoot meristematic cultures. The instant invention does teach that for certain cereal genotypes including commercially important elite maize inbreds that have proven difficult to transform by previously available methods, the induction of shoot meristematic cultures (SMCs) is improved when elevated levels of zinc are present in the culture medium.

Zhang S. et al. fail to teach an element of amended claim 15, namely the addition of elevated levels of zinc (greater than about 35 μM) in the culture medium. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Therefore, Zhang does not anticipate claim 15 as amended.

Accordingly, Applicants respectfully request reconsideration and withdrawal of this 35 USC § 102 rejection.

V. Rejection under 35 USC § 103

Claims 16 and 18-20 are rejected under 35 U.S.C. 103(a) as allegedly being obvious over Zhang S. et al. (US Patent No. 6,486,384, filed September 23, 1998 and issued November 26, 2002) in view of Zhong H. et al. (In-vitro morphogenesis of corn (*Zea mays* L.), 1992, *Planta*, 187:483-489). Claim 20 has been amended. Applicants traverse the rejection and its supporting remarks.

As discussed above regarding anticipation, Zhang S. et al. fail to teach or suggest the addition of elevated levels of zinc (greater than about 35 μM) in the culture medium. Similarly, Zhong H. et al. fail to teach or suggest the addition of elevated levels of zinc (greater than about 35

μM) in the culture medium. Additionally, the instant invention teaches that elevated zinc levels are necessary for successful transformation and regeneration of commercially important elite maize inbreds that are recalcitrant to transformation. One of skill in the art would not be successful in producing transformed maize plants that are recalcitrant to transformation using the methods taught either by Zhang S. et al. and/or Zhong H. et al. without the elevated levels of zinc. In order to render a claimed invention obvious, the references or combination of references must teach or suggest every element of the claimed invention. Since Zhang S. et al. and Zhong H. et al. do not teach or suggest the addition of elevated levels of zinc (greater than about 35 μM) in the culture medium, the rejected claims of the present invention are not obvious.

Accordingly, Applicants respectfully request reconsideration and withdrawal of this 35 USC § 103 rejection.

VI. Nonstatutory Obviousness-Type Double Patenting Rejection

Claims 15-16 and 18-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 of U.S. Patent No. 6,486,384, in view of Zhong H. et al. (In-vitro morphogenesis of corn (*Zea mays* L.), 1992, *Planta*, 187:483-489). Claims 15 and 20 have been amended. Applicants submit that the remaining claims, as amended and based on the arguments set forth in sections IV and V above, do not warrant an obviousness-type double patenting rejection as the claimed methods are not the same as (claim 15) or obvious variants of (claims 16, and 18-20) claims 1-2 of U.S. Patent No. 6,486,384.

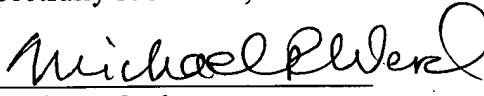
VII. Conclusions

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. **416272004600**. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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Attachments